

# MIDI Playground



## User Guide

**MIDI-Go-Round Version 1.1**

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## Welcome to MIDI-Go-Round

The MIDI-Go-Round application generates dynamic MIDI sequences based on user-entered lists of event parameters. The program steps and loops through the lists and creates a MIDI note event at each step. These sequences can be played and auditioned from within the application or exported for use in other applications.

Lists of these parameters are used to create MIDI events:

- Musical Note
- MIDI Velocity
- Note Interval
- Note Duration
- MIDI Device

The MIDI event created at each step is composed of the next item sequentially in each parameter list. By creating lists of varying size, each loop through the lists will mix different parameters into events, creating an evolving sequence of asymmetrical patterns.

MIDI sequences created by MIDI-Go-Round can be exported as standard MIDI files for use in other applications. Files generated by this application can be exported to a Digital Audio Workstation environment to be combined with other content as part of a composition workflow or can be used with any application which supports the MIDI format. Or the application can be used stand-alone purely for entertainment.

MIDI-Go-Round is part of the MIDI Playground family of applications from NaiveSoft. A major element of the MIDI Playground philosophy is a short learning curve despite rich functionality. The layout is simple with most options in plain view and identified by popup help. The applications are touch screen friendly and work on any Windows 10 device meeting the minimum requirements, including the Surface tablet.

### Installation

The MIDI PlayGround applications are only available through the Microsoft Store. The minimum required operating system is Windows 10 (1709) version 10.0.16299. From the MIDI-Go-Round page in the Windows Store app, select either the trial or full version and the store app will download and install the application.

### Quick Start

In keeping with the MIDI Playground's complexity-averse approach, you should be able, once MIDI-Go-Round is installed and launched, to press a single key and hear results. From that point you can experiment with parameter values or generate random values and see what happens.

To hear MIDI-Go-Round, “just press play”. The play button is in the transport controls located near the bottom of the screen, as indicated in figure 1. Default parameters will be used to generate and play a melody using the built-in Microsoft Wavetable GS Synthesizer through the default audio device.



Figure 1 - Play Button

## Screen Layout and Controls

**Tempo Control >**

**Instrument Controls >**

**Transport Controls >**

**< Key/Notes**

**< Parameter Lists**

**< File Controls**

Notes	Velocities	Intervals	Durations	Devices
A# 5	90	1/2	1/2	1
A 5	105	1/8	1	
A# 6	100	0	1/2	
D 6		0	1/4	
		1/4	1/16	
		1/16	1	
		1/4		

Figure 2 - Screen Control Groups

## Key Signature

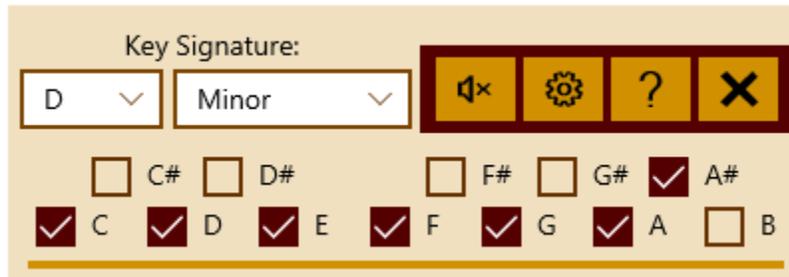


Figure 3 - Key Signature Controls

There are two parts to the key signature; the tonic, which is the “home” note of the key, and the scale of the key, such as major or minor. Selecting the key signature will populate checkboxes representing the individual notes which are part of the selected key. The twelve notes of the twelve-tone musical scale are selectable from the note drop-down. The drop-down box to select the scale value includes major and minor as well as some less commonly used scale options such as blues and pentatonic.

The note and scale options can be bypassed or overridden by selecting individual notes using the checkboxes. If you want your composition to only include specific notes, you can accomplish that by selecting only the desired notes. If the selected notes happen to match a key signature, the note and scale drop-down boxes will be updated to reflect this.

To learn more about key signature: [https://en.wikipedia.org/wiki/Key\\_signature](https://en.wikipedia.org/wiki/Key_signature)

### Utilities

The utility menu is in the upper right of the Key Signature area.



**MIDI Panic:** This control sends a MIDI note off command on every channel to each active device over the range of possible notes. This is useful if some activity leaves a note stuck on.



**Customization Settings:** In the full version of the application, this control provides access to the customization screen, where randomization and MIDI settings can be updated.



**About the App:** Displays the About screen, showing the version number and license type, and a link to the NaiveSoft home page.



**Exit Application:** Close MIDI devices and terminate the application.

## Tempo and Duration

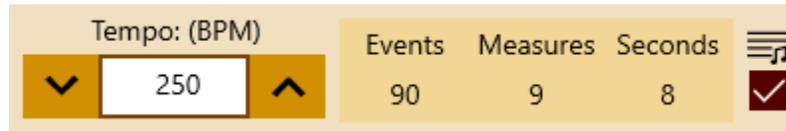


Figure 4 - Tempo Control and Duration Display

In this section you can set the tempo for your composition in beats per minute (BPM). Valid values for tempo range from 10 BPM (a very slow tempo) to 250 BPM (very fast). Values can be changed using the up/down arrows or by typing a value directly into the box. The read-only duration display, shown to the right of the tempo control in Figure 4, shows the length of the generated sequence in events, measures and seconds. It is updated when any parameter change alters the length of the sequence.

 **Animation Control:** This checkbox to the right of the duration display turns the application's animation of stepping through the parameter lists on or off. At each step, the active row in each parameter list can be highlighted to visualize the progress through the lists. This visualization can be disabled by deselecting this checkbox. If you have an older or slower PC and the application exhibits timing issues, turning off the animation will reduce the processing burden on the machine.

## Parameter Lists

Notes	Velocities	Intervals	Durations	Devices
 	 	 	 	 
D 7	110	1/8	1/4	1
A 6	110	0	1/16	
A 4	80	1/8	1	
G 5	85	1/4	1	
F 5	125	0	1/8	
A 6	85		1	
D 6				
D 5 	100 	1/4 	1/4 	1 
 	 	 	 	 

Figure 5 - Parameter Lists

The parameter lists are the heart of the MIDI-Go-Round process. Upon playing a sequence, the application creates a MIDI sequence by repeatedly using the next value in each list to create a MIDI note

event. All five parameters contribute to the new event. The MIDI note consists of the selected pitch, played at the selected velocity, sent to the selected device after the selected interval and held for the selected duration.

By creating lists of differing lengths, the process will cycle through the lists at different rates, creating events with different combinations of parameters. This creates a combination of repetition and variation which can produce interesting patterns. The length of the overall unique sequence by count of events is the smallest common multiple of the parameter list counts. The length of the unique sequence in measures depends on the intervals selected. MIDI-Go-Round always considers one whole note to be a measure.

### Editing Parameters

Each parameter list follows the same format, a scrollable list containing one or more items. The list is not directly editable, values are added, removed or replaced using the controls above and below the list.

Notes	Velocities	Intervals	Durations	Devices
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>🗑️</span> <span>▼</span> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p>Delete Row</p> <p>Clear All</p> <p>Randomize</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>🗑️</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>110</p> <p>110</p> <p>80</p> <p>85</p> <p>125</p> <p>85</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>🗑️</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1/8</p> <p>0</p> <p>1/8</p> <p>1/4</p> <p>0</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>🗑️</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1/4</p> <p>1/16</p> <p>1</p> <p>1</p> <p>1/8</p> <p>1</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>🗑️</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1</p> </div>
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>A 6</p> <p>D 6</p> </div>				
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>D 5</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>100</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1/4</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1/4</p> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>▼</span> <span>▼</span> </div> <div style="margin-top: 5px;"> <p>1</p> </div>
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>+</span> <span>▼</span> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>+</span> <span>▼</span> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>+</span> <span>▼</span> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>+</span> <span>▼</span> </div>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>+</span> <span>▼</span> </div>

Figure 6 - Upper Parameter List Controls

A drop-down list of edit controls above each list has options to delete a row, clear the list or to populate the list with random values. A cleared list will be populated with one row, containing the value in the drop-down list of values immediately below the control.

Notes	Velocities	Intervals	Durations	Devices
🗑️ ▾	🗑️ ▾	🗑️ ▾	🗑️ ▾	🗑️ ▾
D 7	110	1/8	1/4	1
A 6	110	0	1/16	
Insert Above Insert Below Replace Append	80	1/8	1	
	85	1/4	1	
	125	0	1/8	
	85		1	
	100 ▾	1/4 ▾	1/4 ▾	1 ▾
+ ▾	+ ▾	+ ▾	+ ▾	+ ▾

Figure 7 - Lower Parameter List Controls

A drop-down list of controls below each list has options to insert a new value above or below the selected row or at the end of a list. The inserted value will be the value in the drop-down list of values immediately below the control. There is also an option to replace the selected row with the value in the value drop-down list.

#### Note Parameter List and Options

Notes included from the drop-down list are the notes available in the selected key. The range of notes available covers 5 octaves. If the key signature is changed, any notes in the parameter list not part of the new key will be replaced with valid notes.

One special value is represented by the '\*' character, the last option in the drop-down list. This is a wild card character. On play, it will be replaced with a random valid note. On each pass through the list this random value can change.

#### Velocity Parameter List and Options

MIDI uses the concept of velocity as a measure of how forcefully a note is played. For our purpose we can think of it as related to volume of the note. The drop-down includes velocity values from 60 (quiet) to 125 (loudest) in intervals of 5.

#### Interval Parameter List and Options

At each step, the next interval value determines the delay before the next note event is played. Choices represent types of notes from the following options: whole note (1), half note (1/2), quarter note (1/4),

eighth note (1/8), sixteenth note (1/16). There is also an option to select an interval of zero, allowing two or more notes to be played simultaneously.

The time in milliseconds to wait for the next note depends both on the type of interval and the selected tempo. For example, a quarter note interval at 120 BPM will wait 500 milliseconds. For this application, four beats make a measure, and a quarter note is a beat (4/4 time signature). So with 120 beats in a minute, we have two beats (quarter notes) in a second, hence a quarter note interval = 500 ms. Increasing the tempo to 240 BPM, the time between notes decrease, and a quarter note interval becomes 250 milliseconds. At any BPM, an interval of 0 will wait 0 milliseconds.

The full version of the application provides the ability to assign probabilities to each interval, allowing for a high level of control over the randomization process.

### Duration Parameter List and Options

Each MIDI note event will be held for the amount of time indicated by the next duration parameter. Available options are the same as for intervals: whole note (1), half note (1/2), quarter note (1/4), eighth note (1/8), sixteenth note (1/16). There is no zero option for duration. Duration calculations are identical to interval calculations. A quarter note at 120 BPM will last 500 ms.

### Device Parameter List and Options

Options available for device parameters are values 1 through 4, corresponding to the four MIDI device/channel combinations selected in the Voice Controls section, described below.

Each option, 1-4, represents a channel on an available device, either multiple channels on a device or channels on multiple devices. If a device is flagged as “mono”, subsequent note events for that device will be ignored while the device is busy, that is, until all previously played notes on that device have ended.

### Voice Controls



Figure 8 - Voice Controls

MIDI-Go-Round supports four simultaneous voices. Each voice can be sent to any available MIDI device, to any available patch number on that device, on any MIDI channel. Each voice can also be set to operate in mono mode, in which it will only play one note at a time. Subsequent notes sent to a busy mono voice will be ignored.

The slider control in the upper left of the voice control area selects one of the four available voices. Only one voice at a time is available for viewing or editing.



Figure 9 - Voice Selection Slider Control

## MIDI Device

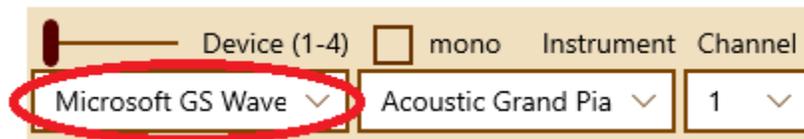


Figure 10 - MIDI Devices

These drop-down lists contain all MIDI devices, either hardware or software, available on your system. The list is updated immediately when a MIDI device is added to or removed from your system. The full version of the application allows for customization of these device lists, by flagging which available devices should be included or excluded from the list, and by assigning friendly names to devices. The default device is the software synthesizer included with Windows, the Microsoft GS Wavetable Synth. Even if you have no other MIDI software or hardware, this option will be available. It is bundled with all releases of Microsoft Windows 10.

## Instrument

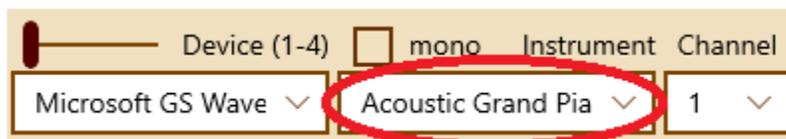


Figure 11 - Instruments

MIDI devices can produce many different sounds, commonly referred to as patches. The MIDI standard organizes these sounds into banks containing up to 128 patches.

The instrument drop-down list lets you select from up to 128 patches from the selected MIDI device, to be played on the selected channel. Your MIDI device may contain multiple banks of patches. The number of banks and how to select them varies among devices. MIDI-Go-Round will select a patch from the currently selected bank on your device, providing your device recognizes standard MIDI program change commands.

Some banks of patches follow the GM (General MIDI) specification, which standardizes patch numbers to specific instrument sounds. For example, in this standard the first patch is always an acoustic piano sound and the 110<sup>th</sup> sound is always a bagpipe. The built-in GS Wavetable Synth follows this standard.

The MIDI-Go-Round application supports this GM specification and will display instrument names for devices recognized as GM devices. For all other devices, the patch names in these drop-down lists will be presented as numbers. So, for your Microsoft synth the first available patch will be displayed as “Acoustic Grand Piano”, but for a hardware synthesizer plugged into your system via USB that first available patch will be displayed as “Patch #0”.

The full version of the application provides user customization of each MIDI device. Through this customization, devices can be flagged as GM compatible. Also, a maximum number of patches can be set, and a device can be set as “mono”, restricting the number of simultaneous notes. The mono option supports single-voiced devices such as monosynths.

## Channel

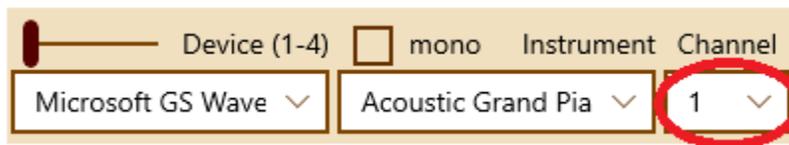


Figure 12 - MIDI Channel

The MIDI specification supports 16 channels. Each channel represents a separate stream of data sent to your MIDI device. Some devices (including the built-in Microsoft GS Wavetable Synth) can play different patches on different channels simultaneously. Other devices may only recognize one channel at a time. It is important that the channel selected here matches the channel from which your device expects to receive data.

By convention, MIDI channel 10 is reserved for drum sounds. The Microsoft GS Wavetable Synth follows this convention, so choosing that channel will play drum sounds rather than the musical notes selected.

## Transport and File Controls



Figure 13 - Transport and File Controls

The transport controls support starting, stopping and looping the play of MIDI sequences. The file controls support the loading and saving of parameter and MIDI files.

 **Generate Random Values:** This control chooses new random values for the parameter lists and other parameters, creating a new MIDI sequence. In the trial version, a default setting determines which parameters and ranges of values are included in the randomization process. The full version allows customization of these values. See the customization section for details.

 **Play MIDI:** This control will start a sequence playing to the selected devices. If the loop control checkbox is checked, the sequence will repeat on completion, if loop is off it will play once and stop. The sequence can also be stopped using the stop button.

 **Stop Play:** This control will stop a currently playing sequence. The stop button is disabled if no sequence is playing, just as the play button is disabled when a sequence is playing.

 **Load Phrase Parameters:** All the parameters chosen for a phrase can be saved to an XML file for future retrieval, so you can save your favorite combinations. This control displays a file open dialog, if a valid parameter file is selected, its contents will be used to update values on the screen.

 **Save Phrase Parameters:** This control will display a save file dialog box. If a file name is entered and the save button selected, an XML file will be created in the chosen folder containing all the parameters making up the current phrase.

 **Save MIDI File:** This control will save the currently generated phrase as a standard MIDI file in the chosen folder. In addition to saving the notes of the phrase to a MIDI sequence, the file will also save MIDI metadata to indicate tempo, time signature, instrument patches.

 **Drag MIDI File:** This control will allow the MIDI content of the currently generated to be dragged and dropped to another application or location. If dragged to a file folder or the desktop it will be saved as a standard MIDI file. Most DAWs will accept drag and drop MIDI content, but there may be variations in how much of the included metadata will be recognized.

The progress bar below the Transport Controls displays the progress of various activities. The bar is color coded based on the type of activity in progress. For example, playing a sequence shows the bar with a green background, generating a sequence shows a blue background.

## Customization Page

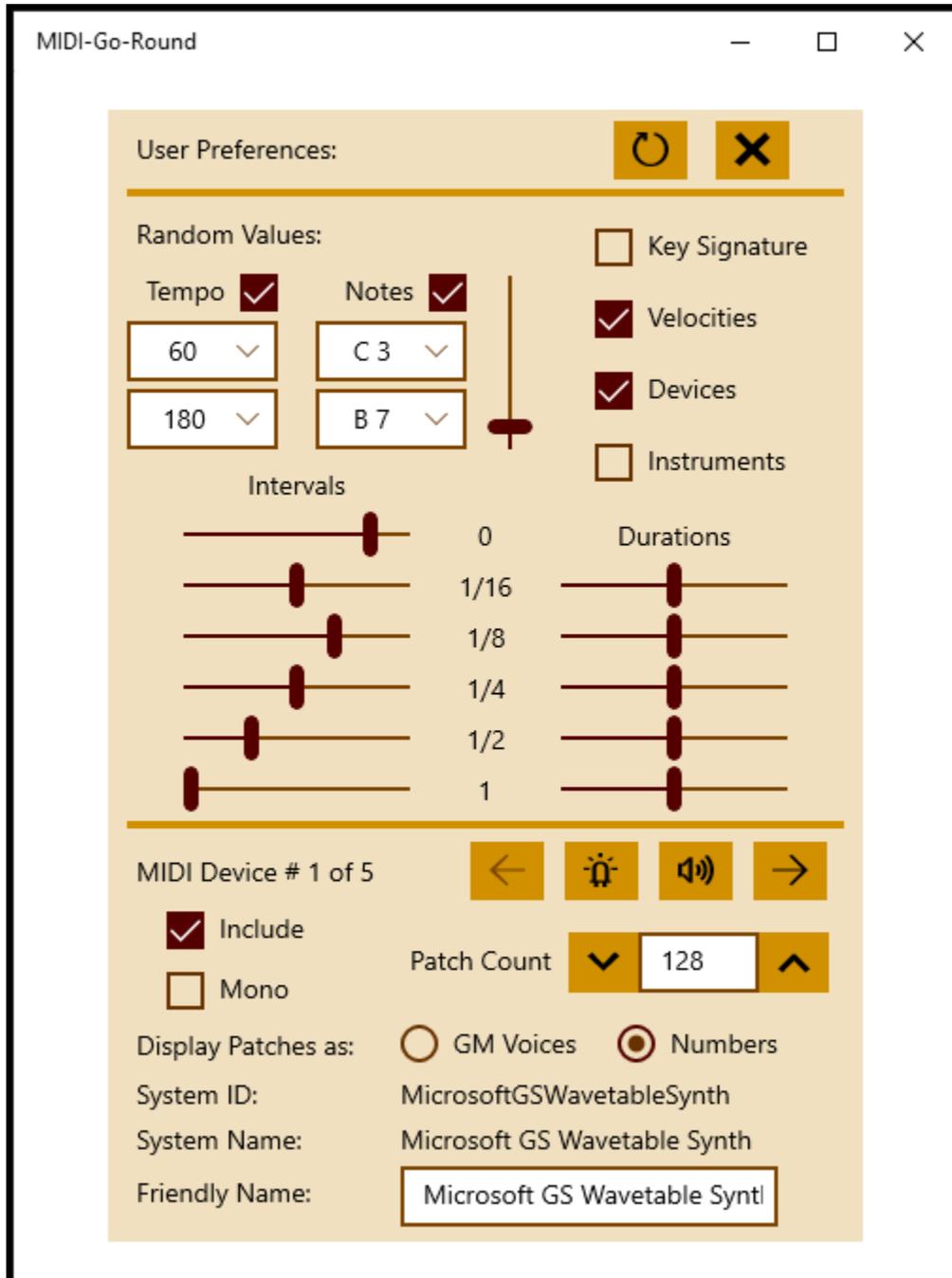


Figure 14 - Customization Screen

Access to the customization page is limited to the full version of MIDI-Go-Round.

## Randomize Parameter Values

The customization screen allows the selection of which parameters are included in the randomization process and in some cases, the ranges of possible random values. Some parameters are represented as check boxes, as on/off values for inclusion in randomization. Others allow selection of min/max values or use sliders to set probability.

Randomization of tempo can be turned on or off, and in addition minimum and maximum values can be selected from drop-down lists.

Randomization of the Notes parameter list can also be turned on or off with a checkbox, and minimum/maximum note values by octave and note can be selected from drop-down lists. The vertical slider to the right of the notes checkbox and drop-downs is for the likelihood of wild card notes. At position zero (down) no wild cards will ever be included. At 100 (up), all notes will be wild cards.

Four checkboxes set on/off values for including these parameters in randomization:

- Randomize Key Signature
- Randomize Velocity parameter list
- Randomize Device parameter list
- Randomize Instrument (patch) selections in Voice Controls

Each of the possible values for both note interval and note duration can be assigned a probability using a horizontal slider. Each value can be set to a value from 0 to 100. Actual likelihood of each value is set relative to the likelihood of the other values. If all sliders are set equally, all interval/duration values are equally likely. Increase a slider to increase the likelihood of that value in randomization. Want more 0 intervals? Set that slider higher. Do not want as many whole note durations? Set that slider lower.

## Customize MIDI Devices

This section allows customization of how MIDI devices appear and work in the MIDI-Go-Round application. All MIDI devices available to the system are available for display and edit.

A display indicates the number of the currently selected MIDI device and the total number of devices available. Left and right arrows scroll through available devices. Two buttons between the arrows help identify and test the displayed device by pinging it and by sending a note on command, respectively. If you have many external hardware MIDI devices and Windows 10 does not recognize their names, pinging the device to check for activity lights may help identify the selected device. Sending a note can help troubleshoot MIDI and audio connections.

Two checkboxes appear immediately below the device count display. The first lets you choose which MIDI devices appear in the drop-down box on the main page. If you have devices which you do not want to use with the application, you can deselect them here. They will still show up on this page so you can reselect them later if desired. The other checkbox lets you set a device as mono, limiting it to one note at a time. If this option is selected, the application will ignore additional notes to this device while an initial note is active.

A radio button lets you set a device to display GM Patch names or numeric patch numbers. There is currently no facility to import a custom list of patch names for a device.

The Windows 10 UWP MIDI API is not consistently successful in retrieving names for MIDI devices. Modern equipment is generally recognized correctly, but older equipment and especially multiport devices, do not show meaningful names. MIDI-Go-Round assigns names to such devices in a format such as “Device:1 – Port:1”. Alternately, a friendly name can be entered on this page for any device, this friendly name will show up in the drop-down list on the main page.

## Exit Customization Page



Save changes and exit.



Exit without saving changes.

## General Information

### MIDI Devices

MIDI-Go-Round uses the new API provided by Microsoft for Windows 10 Universal Windows Platform (UWP) development. This API provides some improvements over previous Windows approaches as well as some downgrades.

The biggest improvement is that hot plugging of MIDI devices is supported, and all MIDI PlayGround applications support this feature. Added or removed devices will be reflected in the device list immediately. Also, MIDI devices can be shared between applications. MIDI PlayGround apps support this as well.

The one degraded feature is that the new API does not recognize the names of many older MIDI devices, especially multi-port devices. The functionality of the device is not impaired. Friendly names can be added in the customization page, available in the full version of the application.

MIDI-Go-Round looks for hardware MIDI devices or for software devices emulating hardware devices. A software synthesizer, for example a virtual instrument using Virtual Studio Technology (VST), will not show up in your drop-down list of devices. To play a virtual instrument from MIDI PhraseBook, you can employ software that provides virtual MIDI devices. Such devices will show up in both MIDI-Go-Round as outputs, and in your virtual instrument as an input, to allow notes generated from MIDI-Go-Round to be played by your virtual instrument.

### Audio Devices

When playing the built-in Microsoft synthesizer, MIDI-Go-Round uses the default Windows audio device. There is no option in the application to select a different audio output if multiple audio devices are available. Both the device and volume are set through Windows.

## Exporting MIDI Files

MIDI files created by the MIDI-Go-Round application, in addition to the note information which makes up the musical phrase, contain the following MIDI metadata:

- Tempo
- Time Signature
- Key Signature
- Program Changes

These MIDI files are playable from media player applications which support the MIDI format. They can be embedded in applications which support media files, such as Microsoft PowerPoint. They can be included in web pages.

Most DAW (Digital Audio Workstation) applications support the import of MIDI data, but they are not consistent in their level of support. MIDI export functions are fully supported in the trial version of MIDI-Go-Round specifically so you can test the application with your DAW to verify that your preferred workflow is sufficiently supported.

Some DAWs will open MIDI files as input, others allow MIDI content to be copied from the clipboard. MIDI-Go-Round supports both these models. You may find that in some cases, metadata such as tempo and key signature may be recognized by the DAW in some types of import but not in others. For example, it may be necessary to set the tempo and key signature in your DAW project prior to dragging and dropping content from MIDI-Go-Round.

## Full versus Trial Version

Feature	Trial Version	Full Version
Randomization Customization	No	Yes
MIDI Device Customization	No	Yes
Load/Save Parameters	No	Yes

Table 1

## Support

Additional support is available on the NaiveSoft website.

Visit: <http://www.naivesoft.com/>